

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Previously Presented) A lensless optical servo system (100) comprising:
  - an unfocused, undiffracted light source (102) to generate light directed onto a rotating disk;
  - a plurality of geometric pattern filters to filter light reflected from the rotating disk, each of the geometric pattern filters specifying a corresponding periodic spatial pattern to filter the reflected light, at least two of the geometric pattern filters specifying respective periodic spatial patterns that are out of phase relative to each other; and
  - a plurality of photodetectors (104, 106, 108) to detect the light reflected from the disk and filtered by the geometric pattern filters, each photodetector being covered by a respective geometric pattern filter in the plurality of geometric pattern filters (110, 112, 114).
2. (Previously Presented) A lensless optical servo system (100) according to claim 1 wherein said geometric pattern filters (110, 112, 114) include a sinusoidal pattern filter to filter the reflected light.
3. (Previously Presented) A lensless optical servo system (100) according to claim 1 wherein said geometric pattern filters (110, 112, 114) include a metalized sinusoidal pattern filter to filter the reflected light.
4. (Previously Presented) A lensless optical servo system (100) according to claim 1 wherein said geometric pattern filters (110, 112, 114) include an absorbing sinusoidal pattern filter to filter the reflected light.

5. (Currently Amended) A lensless optical servo system (100) comprising:

an unfocused, undiffracted light source to generate light directed onto a rotating disk;  
a plurality of geometric pattern filters to filter light reflected from the rotating disk; and  
a plurality of photodetectors to detect the light reflected from the disk and filtered by the geometric pattern filters, each photodetector being covered by a respective geometric pattern filter in the plurality of geometric pattern filters, wherein said plurality of photodetectors (104, 106, 108) includes a first photodetector (104) and a second photodetector (106), said first photodetector (104) is covered by a first sinusoidal pattern filter (110) and said second photodetector (106) is covered by a second [[a]] sinusoidal pattern filter (112), and said first sinusoidal pattern filter (110) and said second sinusoidal pattern filter (112) are offset from each other by approximately ninety degrees.

6. (Currently Amended) A lensless optical servo system (100) comprising:

an unfocused, undiffracted light source to generate light directed onto a rotating disk;  
a plurality of geometric pattern filters to filter light reflected from the rotating disk; and  
a plurality of photodetectors to detect the light reflected from the disk and filtered by the geometric pattern filters, each photodetector being covered by a respective geometric pattern filter in the plurality of geometric pattern filters, wherein said plurality of photodetectors (104, 106, 108) includes a first photodetector (104) and a second photodetector (106), said first photodetector (104) is covered by a first sinusoidal pattern filter (110) and said second photodetector (106) is covered by a second [[a]] sinusoidal pattern filter (112), and said first sinusoidal pattern filter (110) and said second sinusoidal pattern filter (112) are offset from each other by approximately one hundred twenty degrees.

7. (Original) A lensless optical servo system (100) according to claim 5 wherein said first sinusoidal pattern filter (110) has a first part (110a) and a second part (110b), said first part (110a) of said first sinusoidal pattern filter (110) is spaced apart from and approximately one

hundred eighty degrees out of phase with said second part (110b) of said first sinusoidal pattern filter (110), said second sinusoidal pattern filter (112) has a first part (112a) and a second part (112b), and said first part (112a) of said second sinusoidal pattern filter (112) is spaced apart from and approximately one hundred eighty degrees out of phase with said second part (112b) of said second sinusoidal pattern filter (112) .

8. (Original) A lensless optical servo system (100) according to claim 5 wherein said plurality of photodetectors (104, 106, 108) includes third photodetector (108), said third photodetector (108) is covered by a third sinusoidal pattern filter (114), and said third sinusoidal pattern filter (114) and said second sinusoidal pattern filter (112) are offset from each other by approximately ninety degrees.

9. (Original) A lensless optical servo system (100) according to claim 8 wherein said first sinusoidal pattern filter (110) and said third sinusoidal pattern filter (114) are offset from each other by approximately one hundred eighty degrees.

10. (Original) A lensless optical servo system (100) according to claim 8 wherein said first sinusoidal pattern filter (110) has a first part (110a) and a second part (110b), said first part (110a) of said first sinusoidal pattern filter (110) is spaced apart from and approximately one hundred eighty degrees out of phase with said second part (110b) of said first sinusoidal pattern filter (110), said second sinusoidal pattern filter (112) has a first part (112a) and a second part (112b), said first part (112a) of said second sinusoidal pattern filter (112) is spaced apart from and approximately one hundred eighty degrees out of phase with said second part (112b) of said second sinusoidal pattern filter (112), said third sinusoidal pattern filter (114) has a first part (114a) and a second part (114b), said first part (114a) of said third sinusoidal pattern filter (114) is spaced apart from and approximately one hundred eighty degrees out of phase with said second part (114b) of said third sinusoidal pattern filter (114) .

11. (Original) A lensless optical servo system (100) according to claim 10 wherein said first sinusoidal pattern filter (110) and said third sinusoidal pattern filter (114) are offset from each other by approximately one hundred eighty degrees.

12. (Original) A lensless optical servo system (100) according to claim 11 wherein said light source (102), said photodetectors (104, 106, 108), and said pattern filters (110, 112, 114) are all formed on a single common substrate.

13. (Previously Presented) A lensless optical servo system (100) according to claim 12 further comprising means for deflecting light (103) from said laser source (102) to the rotating disc (40) .

14. (Original) A lensless optical servo system (100) according to claim 13 wherein said light source is a laser diode.

Claims 15-32. (Cancelled).

33. (Currently Amended) A lensless optical servo system (100) according to claim 1, wherein at least one of the periodic spatial patterns specified by the geometric pattern filters has a ~~frequency~~ period that is related by an integer number to a tracking pitch of the disk.

34. (Currently Amended) A lensless optical servo system according to claim 33, wherein at least one of the periodic spatial patterns specified by the geometric pattern filters has a ~~frequency~~ period that is approximately two times the tracking pitch of the disk.

35. (Previously Presented) A disk drive system, comprising:

a rotating disk having a reflective pattern;

an unfocused, undiffracted light source to generate light directed onto the rotating disk;

a plurality of geometric pattern filters to filter light reflected from the rotating disk, each of the geometric pattern filters specifying a corresponding spatial pattern to filter the reflected light based on the reflective pattern on the disk, at least two of the geometric pattern filters specifying respective spatial patterns that are out of phase relative to each other; and

a plurality of photodetectors to detect the light reflected from the disk and filtered by the geometric pattern filters, each photodetector being covered by a respective geometric pattern filter in the plurality of geometric pattern filters.

36. (Currently Amended) A disk drive system according to claim 35, wherein each of the spatial patterns specified by the geometric pattern filters includes a periodic spatial pattern having a frequency period that is approximately two times the tracking pitch of the disk.

37. (Previously Presented) A lensless optical servo system configured for a disk drive including a rotating disk having a reflective pattern, the system comprising:

an unfocused, undiffracted light source to generate light directed onto a rotating disk;

a plurality of geometric pattern filters to filter light reflected from the rotating disk, each of the geometric pattern filters specifying a corresponding spatial pattern to filter the reflected light based on the reflective pattern on the disk, at least two of the geometric pattern filters specifying respective spatial patterns that are out of phase relative to each other; and

a plurality of photodetectors to detect the light reflected from the disk and filtered by the geometric pattern filters, each photodetector being covered by a respective geometric pattern filter in the plurality of geometric pattern filters.

38. (Currently Amended) A lensless optical servo system according to claim 37, wherein each of the spatial patterns specified by the geometric pattern filters includes a periodic spatial pattern having a frequency period that is approximately two times the tracking pitch of the disk.